



CCR Fellows & Young Investigators Newsletter

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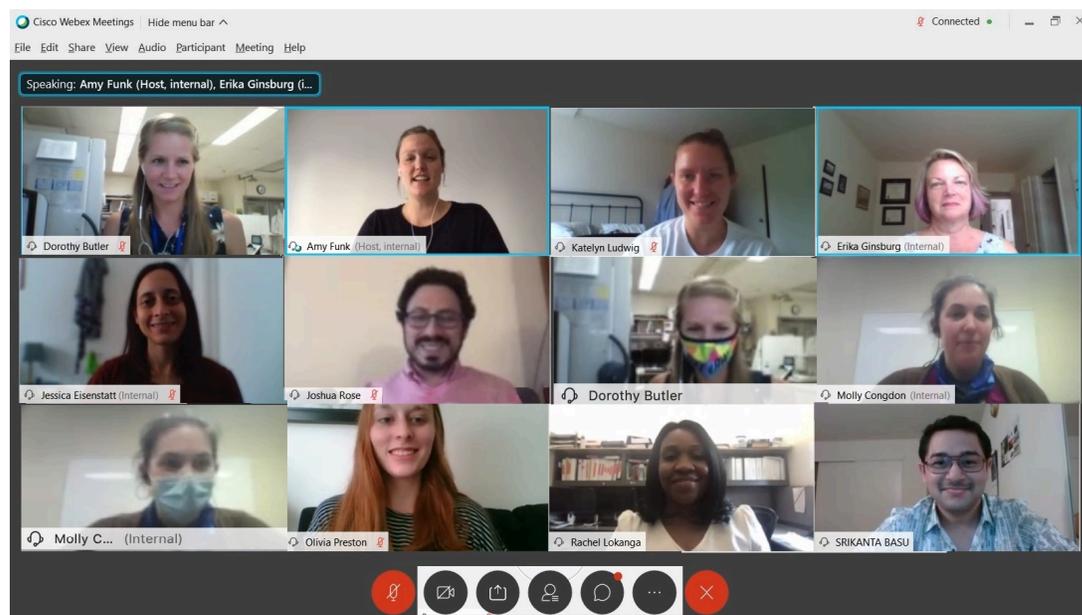
CCR-FYI Newsletter
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In the picture above, the CCR-FYI Symposium Planning Committee: Dorothy Butler, Amy Funk, Kate Ludwig, Erika Ginsburg, Jessica Eisenstatt, Joshua Rose, masked Dorothy Butler :), Molly Congdon, masked Molly Congdon :), Olivia Preston, Rachel Lokanga, Srikanta Basu. Not in the picture, but part of the Planning Committee: Kate Brown, Laura Davis, Subreen Khatib, Jenny Nathans, Zhuo Wang, and Allison Cross.

Support of the CCT-Office of Training and Education was essential for the success of this event, in particular the Committee wants to thank Erika Ginsburg, Jonathan Wiest, Oliver Bogler, Nicole Garner, Angela Jones, Keyonna Earle, Mary Velthuis, and Laura Hooper

CCR-FYI Association is supported by the **Center for Cancer Training (CCT)** and CCR Office of the Director (NCI).

Connect with CCR-FYI



The COVID-19 pandemic continues to have a major impact on the life of many NCI fellows. One of the big CCR events of the year (the CCR-FYI Colloquium) was initially rescheduled from Spring to Summer, and eventually cancelled to be converted into a focused Virtual Symposium to bring fellows valuable training, mentorship and advice for their future career in the form of panels and workshops.

In this edition of the Newsletter we feature summaries of each section of the Symposium, as well as articles about the Frederick Diversity Committee, the DCDP meeting with Dr. Sharpless and tips to bring inclusivity within your scientific publications. I hope you enjoy reading the Fall 2020 Newsletter. – Alida Palmisano (Editor-In-Chief)

(front page, background image created with BioRender.com and picture by Tyler Callahan on Unsplash)

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2021 CCR-FYI Colloquium and Holiday Gift Drive!!

MARK YOUR CALENDARS FOR THE 2021 CCR-FYI Colloquium

From Mechanisms to Therapies:

Current Highlights in Cancer Research

April 19th-20th, 2021

Virtually or at NCI Shady Grove as guidelines permit

Oral and Poster Presentations • Career Networking and Development Workshops • Keynote Speakers • Outstanding Postdoctoral Fellow Presentation • Survivor Speaker

\$1500 TRAVEL AWARDS!

Registration and abstract submission for the 2021 Colloquium will open in late fall 2020



For more information, please contact:
Katelyn.Ludwig@nih.gov and Srikanta.Basu@nih.gov



**CCR-FYI Annual Holiday Gift Drive
Benefiting the NIH Children's Inn**



Help stock the "Gingerbread Gift Shop" for The Children's Inn at NIH
Children and their families can shop for holiday gifts –at no cost –for their loved ones!



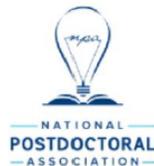
Festive, marked collection boxes will be placed around all campuses collecting donations
from Monday, November 30th – Thursday, December 10th

All gift items should be **new**, in original packaging, and **not wrapped**
***stuffed, plush toys, and Play-Doh cannot be accepted**

Questions? Contact: Molly.Congdon@nih.gov

Important resources: spotlight

- Inclusion, anti-racism, and wellness resources from OITE
https://www.training.nih.gov/2020_inclusion_anti-racism_and_wellness_resources
- Moving from Bystander to Upstander: Take Action to Combat Harassment and Aggressions [NIH OITE Videocast] (<https://videocast.nih.gov/watch=37765>)
- DDM Seminar Series on [Unconscious Bias with Howard Ross](#) presents the importance of recognizing and managing unconscious bias to mitigate unwanted consequences in the workplace (for NIH staff only)
- Building a Diverse Workforce: the CCT Intramural Diversity Workforce Branch (IDWB) was established to:
 - Attract, recruit, and foster a community of scientists from diverse backgrounds at NCI
 - Support trainees and new recruits through onboarding and mentoring
 - Develop and implement activities and programs to create a lasting culture of inclusion
 The IDWB has developed opportunities to enhance recruitment and retention, increase partnerships, and generate diversity awareness.
More information at <https://www.cancer.gov/grants-training/training/idwb>



What the NPA Does:

- Promote positive change in the postdoctoral experience.
- Develop and provide resources that postdoctoral scholars and administrators need for success.
- Provide opportunities for the postdoctoral community to connect.

NPA Highlights:

- Recommendations for postdoctoral policies and practices
- International postdoc survival guide
- Resources for developing mentoring plans for postdocs
- Responsible conduct of research toolkit
- The Elsevier Foundation New Scholars Grant
- PDA and PDO toolkits

NPA Membership Benefits:

- Leadership and professional development opportunities through volunteer service
- Opportunities to make your voice heard on national postdoctoral issues
- Subscriptions to the NPA e-alerts and The POSTDOCKET (quarterly newsletter)
- Reduced meeting registration fees, as well as other discounts
- Access to members-only Web content

Providing a National Voice and Seeking Positive Change
To join the NPA, please visit:
www.nationalpostdoc.org

Join the Fellows and Young Investigators Steering Committee!



Are you interested in networking with other fellows, exploring alternative careers in science, gaining marketable skills, or giving back to the community?

Join the CCR-FYI SC! Meetings are held monthly MS Teams on the last Thursday of the month, at 11am.



Providing Valuable Training Experiences for CCR Fellows

For more information, please contact:
Jessica.Eisenstatt@nih.gov and Amy.Funk@nih.gov

Resilience in the face of a pandemic: the CCR-FYI Symposium goes virtual

by: Jessica Eisenstatt and Amy Funk

For the 20th annual CCR-FYI Colloquium, titled "Cancer 20/20: Envisioning the Future of Research and Care", we planned events to celebrate how far the CCR-FYI has come by inviting back the fellows who were integral in kicking off the Colloquium. We also looked to the future by planning career development workshops and panels to promote the skills of our current fellows. Unfortunately, the early days of the COVID-19 pandemic led to the cancellation of the 2020 CCR-FYI Colloquium. While this decision was disappointing, we felt that the health and safety of the fellows and all participants was the priority. Undeterred, we strove to offer the CCR community a unique experience with the 2020 CCR-FYI Virtual Symposium, a one-day event in which we hosted many of the speakers, workshops, and panels originally planned for the Colloquium. The day-long event was full of virtual WebEx sessions that included keynote speakers and concurrent workshops and panels.

The day started with opening remarks by the CCR-FYI Colloquium Planning and Steering Committee co-chairs, Amy Funk and Jessica Eisenstatt. Next, Erika Ginsburg, the now Chief of the Office of Training and Education, Center for Cancer Training (CCT), gave an address to describe the different resources that are on hand for NCI fellows and fellowships that are supported by the CCT. We also heard from Dr. Oliver Bogler, the new Director of the CCT. He shared how his work led him to the CCT, how he plans to engage with trainees, and the future of the CCT office.

We hosted three keynote speakers from the NCI. Dr. Beverly Mock shared her trajectory as a research scientist that led to her current position of CCR Deputy Director, Head of the Cancer Genetics Section at the NCI in a presentation entitled "*How did I get here, what have I learned, and what am I working on?*"

Dr. Marielle Yohe of the Pediatric Oncology Branch gave an engaging address on her work "*Targeting RAS in pediatric cancers and RASopathies.*"

Finally, in a talk titled "*Rebalancing the Immune Suppression Program in Metastasis,*" the Outstanding Postdoctoral Fellow awardee for 2020, Dr. Sabina Kaczanowska of the Pediatric Oncology Branch, presented her work on utilizing genetically-engineered myeloid cells to rebalance the dysregulated metastatic microenvironment in cancer.

Throughout the day, we hosted three concurrent sessions of workshops and panels to showcase how to build transferable skills to a variety of careers. In a twist on our typical academia and industry panels, the Symposium featured workshops that helped fellows strengthen their interview skills for academic and non-academic positions. In response to numerous requests from fellows in the past, we hosted a new workshop aimed at highlighting what the Division of International Services (DIS) can do for visiting fellows, especially during the COVID-19 pandemic. We also hosted three panels to highlight different career paths that fellows can pursue after leaving the NCI. Our first panel focused on academic positions that include

assistant professors and directors of scientific programs as well as postdoctoral affairs within universities. The second panel featured reviewers at the FDA, a program officer at NIAD, and a senior scientist with Noblis that highlighted the variety of government positions available and the best way to get one's foot in the door. The third panel was put on by the NCI Technology Transfer Office, and participants learned about technology transfer and the fellowships offered at the NCI. The articles in this Symposium Edition of the CCR-FYI Newsletter provide more detail on the

sessions discussed above. Finally we would like to thank NCI IT for their help leading up to and during the Symposium and all the CCR-FYI volunteers that helped plan the 2020 Colloquium and Symposium events.

If you would like to get involved in the CCR-FYI and the planning of the 2021 Colloquium, please contact either Amy Funk (amy.funk@nih.gov) or Jessica Eisenstatt (jessica.eisenstatt@nih.gov) for more information.

Watch the recordings of the CCR-FYI Symposium!

For people unable to attend the Symposium or desiring to listen to the discussion again, a complete recording of event is available in the following NIH Box folder.

<https://nih.box.com/s/d0kdykk7oebngdbtzyns17r34f3cbvf7>

The NIH Box folder contains a PDF file listing the timestamps of the various events within the 3 video recordings of the full Symposium day.

Access to the recording requires NIH login and an NIH Box account.

If you don't have a Box account, the process to get access is free and easy.

- check information about Box.com from this Knowledge Base article ([Overview of Box.com at NCI](#))
- to request a box NIH account: <https://boxaccount.nih.gov/>
- After your request the account should be approved and activated within an hour
- Once you have a Box account, click the CCR-FYI Symposium folder link from a [supported browser](#) using NIHusername@nih.gov and PIV/PIN.

(Note: You do *not* need to be connected to the NIH network or VPN)

Mentoring, collaboration, curiosity, diversity and resilience - Beverly Mock's mantra for success in academia

by: Sunita Chopra

The keynote address of the 2020 CCR-FYI Virtual Symposium was delivered by the inimitable Beverly Mock, senior investigator in the Laboratory of Cancer Biology and Genetics and Deputy Director at CCR, NCI. In her inspiring talk entitled "How did I get here, what have I learned, and what am I working on?" Dr. Mock recounted her scientific journey, lessons learned along the way, her perspectives on the future of cancer care and findings from her own research on mouse myelomas.



Early life and career: Importance of mentors

Dr. Mock was born and grew up on a farm in Western Kentucky where she went to a four-room elementary school. She was the first person in her family to graduate from college, earning her BS in Physics, Chemistry and Biology from the Austin Peay State University, Tennessee. She went on to complete MS and PhD degrees in Zoology from the University of Maryland. Taking a course in comparative immunology while in graduate school, taught by Michael Potter, fostered her interest in immunology. She did a two-year post-doc in the Department of Immunology at the Walter Reed Army Institute of Research followed by another

two-year post-doc in the Lab of Genetics at NIH. All this training and hard work got her the dream job of becoming a principal investigator in the Lab of Genetics at the NIH. Her accomplishments also included becoming Associate Director of Scientific Programs at CCR, Deputy Lab Chief for the Laboratory of Cancer Biology and Genetics and Deputy Director for CCR, NCI.

She attributed these accomplishments to hard work, life events and saying "YES" to opportunities and challenges. Several mentors and teachers also helped shape her career. She mentioned her 7th grade teacher (Harold Bennett) as her first mentor who had students do independent projects, which stoked her initial interest in science. David Snyder, another mentor from her college days, encouraged her to go to graduate school when she was planning to become a high school teacher. Michael Potter had an immense influence on her, and she still uses the mouse myeloma model developed by him. She also acknowledged several women scientists (Drs. Sara Wood, Carol Nacy, Jenefer Blackwell, Carol Thiele) who were role models for her.

Lessons Learned: Advice to Younger Researchers

Beverly Mock offered invaluable advice distilled from the lessons she has learned from her very own career trajectory and experiences. She stressed the importance of having and investing in mentors, peers, and trainees. Quoting from

Hamilton, she says, “Be in the room where it happens.” She advocates that researchers tackle important problems which are likely to have an impact, play to their strengths and focus on strategies that lead to publications, and continuously reinvent themselves to ensure they are doing cutting edge research. She advised that while it is important to take time to think, one must also get to action, design experiments and explore answers. In her own words, “Don’t let perfection be the enemy of the good.” She emphasized the need for embracing collaborations and going to meetings. She encouraged young researchers to take advantage of the open-rooms policy of NIH labs to expand their networks and build collaborations. One must never be afraid to acknowledge that they do not know all the answers, but it is important to invest in developing the tools and networks to find them. Beverly Mock also emphatically addressed the importance of having a diverse workforce. She believes that diversity in background, opinion and thought leads to diversity in problem solving.

Lab Research Findings

Dr. Mock’s research interests lie in dissecting complex genetic traits that underlie genetic susceptibility (a potential proxy for drug resistance) to cancers of hematopoietic origin. Her specific interest is in mouse plasma cell tumors and human multiple myeloma (MM), which are cancers of B cells and produce osteolytic lesions. Median survival is 5-7 years, with males having a slightly higher incidence than females and African Americans being twice as likely to be affected. While several drugs are commonly used, drug resistance invariably

develops, necessitating exploration of new therapies.

Her group had previously identified genes causing susceptibility to plasmacytomas using the mouse myeloma model developed by Michael Potter. The keynote address in the FYI Symposium focused on two susceptibility genes thus identified, *Pctr1* (p16) and *Pctr2* (mTOR) which affect pRB and PI3K pathways, respectively. Her work has shown that congenic strains carrying two resistant alleles (*Pctr1* and *Pctr2* from the resistant mouse strain DBA) on the background of the sensitive mouse strain BALB/c resulted in greater resistance to tumor induction compared to either of the alleles alone. These findings suggested that drug combinations targeting the underlying pathways are likely to have a cooperative effect. The Mock lab further showed that a combination of rapamycin and entinostat (an HDAC inhibitor), respectively targeting mTOR and pRB pathways, synergistically inhibited the growth of MM cell-lines and most of the NCI-60 cell-lines. The combination was also found to be highly effective in xenograft studies and in inhibiting the growth of patient-derived MM cells. These studies identified MYC inhibition as the primary mechanism for the reduced MM growth achieved with the drug combination.

To find optimal drug combinations and doses targeting MYC, pRB and mTOR pathways, an unbiased single agent high throughput screening of a compound library of ~1900 small molecules in 43 MM cell-lines was done. As an example of building fruitful collaborations, Dr. Mock mentioned meeting Keith Hughitt, a bioinformatician, at a NCBI Hackathon. Along with Aleksandra Michalowski and John Simmons, Keith Hughitt developed a pipeline to

identify genes and pathways capable of predicting drug sensitivity.

Future of Cancer Care: Research Directions

Dr. Mock highlighted the six areas with opportunities for future cancer care and research. This is precious advice for young researchers trying to find a niche and problems to focus on.

1. Strategies to prevent cancer initiation, progression and metastasis.
2. Treatment strategies to circumvent drug resistance; her own lab is investing in finding drug combinations to treat causative pathways.
3. Strategies to develop biomarkers for drug treatment: it is important to identify who could benefit from which drugs to ensure efficacy. One branch of her lab is involved in finding biomarkers for better cancer care.
4. Strategies to turn immunologically 'cold' tumors into 'hot' ones for effecting immunotherapies- While she does not currently work on this question, she has not ruled out the possibility that some day she might.
5. Strategies to increase innate immune responses.
6. Underpinnings in Basic Research- She also acknowledged that all the above-mentioned strategies would be influenced by advances in basic research in the fields of genetics, epigenetics, RNA biology, molecular biology, proteomics, immunology, chemistry, biochemistry, and bioinformatics. She particularly emphasized the importance of bioinformatics and systems studies and advised young researchers to have some knowledge of these subjects. "Learning about different types of programming languages like R and python and how to interpret standard bioinformatic analyses would benefit their careers," she said.

In her concluding remarks, Dr. Mock again addressed the importance of building collaborations and investing in people. She emphasized staying in touch despite the restrictions imposed by the current pandemic.

In her words,

"Stay Strong, Stay Safe and Stay 'in touch.'"

Meet the new CCT Director – Oliver Bogler, Ph.D.

by: Katherine Polk

If you have not had the chance to meet with Oliver Bogler yet, then add saying hello to him via email or twitter to your to-do list! Dr. Bogler joined the NCI as the new Center for Cancer Training (CCT) Director in January, with just enough time to get his feet wet on campus



before the pandemic shook things up. At the CCR-FYI Virtual Symposium, Dr. Bogler introduced himself to fellows of the NCI and discussed the exciting plans he has in store for NCI trainees and CCT.

Who is Oliver Bogler, Ph.D.?

Dr. Bogler earned his Ph.D. from the Ludwig Institute for Cancer Research in London and did his postdoctoral training at the Salk Institute and the Ludwig Institute. His research focused on Epidermal Growth Factor Receptor (EGFR) signaling and novel platinum compounds in glioblastoma during faculty positions at Virginia Commonwealth University, Henry Ford Hospital, and the University of Texas MD Anderson Cancer Center. At MD Anderson, he also served as director of basic research for the Brain Tumor Center. Later in his career, Dr. Bogler worked as MD Anderson's vice president for global academic programs and a year later was appointed as senior vice president for academic affairs. Prior to joining the NCI in January, Dr. Bogler was the chief operating officer at the Extension for Community Healthcare Outcomes (ECHO) Institute where he worked to improve services to underserved populations in health

care and education, by making information more accessible to these populations.

New Initiatives for the NCI Trainee Experience

The CCT is a branch of the NCI that focuses specifically on NCI trainees, unlike the Office of Intramural Training and Education which serves the entirety of the NIH. The mission of the CCT "is to catalyze the development of a 21st century workforce capable of advancing cancer research through a scientifically integrated approach." They aim to achieve this mission by providing research training and career development activities for NCI trainees of all levels and continually adapting resources to meet the cancer research workforce needs.

As director of the CCT, Bogler plans to carry out this mission and empower NCI trainees through several new initiatives that he hopes will enhance the NCI trainee experience. Below are some of the initiatives he spoke about at the CCR-FYI Virtual Symposium.

NCI Connected Learning Community

In regard to the NCI trainee experience, Dr. Bogler has already noticed that NCI trainees do not feel very connected to each other. To address this, the NCI Connected Learning Community is being built. The vision of the NCI Connected Learning Community is a virtual platform to empower NCI trainees through improved channels of information and networking. For example, information will be disseminated at relevant timepoints throughout a trainee's time at NCI. Instead of being provided an overwhelming amount of information and materials at the start of a

postbac or postdoc, information will be given at more appropriate times in the training experience. For example fellows would receive materials on planning their time at the start of their time at NCI and they would not receive information on finding jobs until the third year. This will allow NCI trainees time to adjust to each season of the training experience and keep them from misplacing information before it is relevant. Dr. Bogler also hopes the NCI Connected Learning Community will include social and learning networking opportunities where more experienced NCI trainees can give advice to new NCI trainees. I am really looking forward to seeing what these networking opportunities will look like and taking advantage of this when it rolls out!

ORCID

[ORCID](#) may sound familiar from the numerous emails NCI trainees received as part of a recent campaign to encourage trainee membership. When a researcher signs up for an ORCID iD, an alphanumeric code is received, which is unique to each researcher. Upon joining, you let ORCID know which previously published papers are yours and they assign these publications your unique alphanumeric code. Now by using a researcher's ORCID iD their specific publications can be identified more easily. This is especially helpful in identifying NCI trainees with common names. In addition, ORCID allows CCT to track new publications by NCI trainees and celebrate trainee achievements on social media, which is a great way to spread information about all your hard work (@NCI_Bogler)!

Electronic Initiatives

You should all be familiar with the Electronic Individual Development Plan (eIDP). NCI trainees complete these plans yearly to encourage conversations with their mentors on

training goals for the coming year. Dr. Bogler hopes to encourage the use of the eIDP as a helpful tool to proactively reflect and act upon the goals and skills needed to advance in the scientific career, rather than seeing eIDP as another item on the to-do list. One challenge of the workplace can be having conversations with your mentor, especially when your career goals differ from academic research. Filling out the eIDP helps NCI trainees advocate for themselves in a more hands-off approach by creating the opportunity to discuss research and career objectives, especially with mentors.

What is in Your Future

Dr. Bogler closed his talk by discussing where the scientific field is moving as well as how training and science are rapidly changing. Science is faster-paced and more pressuring than it has ever been. Collaboration is a new key skill that will make the difference between being/becoming a successful researcher or not; and by utilizing social media apps such as Twitter and LinkedIn, collaboration takes on a new look. On the flip side, as we've seen this year, science is not changing enough. Racial and gender inequalities still permeate all levels of research. Society lacks scientific thinking and literacy levels that would allow science to dramatically impact society in a positive way. A successful training experience will acknowledge how science is moving forward and help it move along and the CCT is here to help ensure you have that successful training experience.

So, welcome Dr. Oliver Bogler! Thank you for your talk and I look forward to seeing how your many great ideas enhance the NCI trainee experience with CCT.

Oliver Bogler, Ph.D. - Director, Center for Cancer Training Email: oliver.bogler@nih.gov
Twitter: [@NCI_Bogler](https://twitter.com/NCI_Bogler)

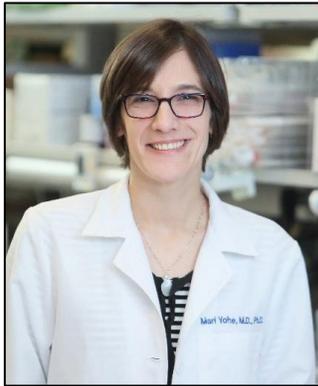
“Targeting RAS in pediatric cancers and RASopathies” Keynote Talk: Dr. Marielle Yohe

Assistant Clinical Investigator, Pediatric Oncology Branch, National Cancer Institute

by: Amy Funk

Selecting an intramural speaker from the outstanding researchers at the NCI for the CCR-FYI Annual Colloquium in the past has been a difficult decision.

However, this year, Dr. Marielle Yohe quickly emerged as a top candidate. She is a newly appointed NCI Assistant Clinical Investigator with experience in both clinical and research settings. Additionally,



she recently completed her postdoctoral fellowship at the NCI in the Genetics Branch in the Center for Cancer Research under the mentorship of Dr. Javed Khan. Her translational research and relatable career path made her an excellent choice for one of the highlighted research talks for the NCI fellows attending the symposium who are eager to pursue an academic career.

Before her move to the NCI, Dr. Yohe obtained M.D. and Ph.D. degrees from the University of North Carolina at Chapel Hill where her research focused on the role of truncated Dbl-family Rho guanine nucleotide exchange factors on altering the activation of cell signaling pathways. She then completed an internship and residency in pediatrics at Connecticut Children’s Medical Center followed by fellowship training at the National Cancer Institute/Johns Hopkins

University Hematology and Oncology joint program. She is board certified in General Pediatrics and Pediatric Hematology/Oncology and is a recipient of the Alex’s Lemonade Stand Foundation Young Investigator Award.

During her keynote presentation, she discussed her recent work on identifying small molecule-based therapies that target RAS for treatment of pediatric solid tumors and RASopathies. She focused her talk on targeting Ras mutations in a type of pediatric cancer called fusion negative rhabdomyosarcoma (FN-RMS) that usually affects children between the ages of four and six. The 5-year survival rate of FN-RMS patients is 82%; however, significant relapse can be observed, leading to poor survival. Due to the high prevalence of the Ras hotspot mutations in FN-RMS patients, effective inhibitors of the Ras-Raf-MEK-ERK pathway are desirable. Dr. Yohe performed a large and unbiased drug screen on FN-RMS patient cell lines and demonstrated mitogen-activated protein kinase kinase (MEK) inhibitors as a potential targeted therapy for these patients. Previous research showed that overactive RAS signaling resulted in decreased cell differentiation. Dr. Yohe revealed that MEK inhibition in FN-RMS resulted in differentiation by inducing myogenin (MYOG) expression at both the RNA and protein levels. She further elucidated the signaling mechanism by discovering that ERK2 was located at the locus of the MYOG gene leading to RNA polymerase II stalling at this locus. Therefore, an increase in MYOG transcription was observed once ERK2

activity was suppressed by MEK inhibition. Finally, she tested the MEK inhibitors in an FN-RMS orthotopic xenograft mouse model and observed a significant delay of tumor growth with induced cell differentiation.

Dr. Yohe wrapped up her presentation with her recent work investigating combination therapy options for FN-RMS patients in collaboration with Dr. Craig Thomas at NCATS. From these studies, they identified insulin-like growth factor 1(IGFR1) inhibitors to have a possible synergistic effect with the previously tested MEK inhibitors. Several IGFR1 inhibitors were tested for tolerability and efficacy to achieve a combination therapy capable of effectively treating multiple mouse models of FN-RMS with limited side effects. She continues her work on

testing this novel drug combination in other RAS driven cancers that urgently need targeted therapies such as neuroblastomas and RASopathies. Finally, Dr. Yohe is working on finding additional targets in these types of cancer for patient-specific treatments in the clinic.

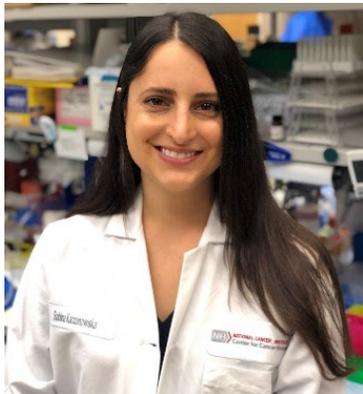
We would like to thank Dr. Marielle Yohe for her participation in the virtual one-day FYI symposium. Her research exemplified the theme for this year's event, *Cancer 20/20: Envisioning the Future of Research and Care*, and we are excited to stay updated on her research progress and future career path.

“Rebalancing the Immune Suppression Program in Metastasis” Keynote Talk: Dr. Sabina Kaczanowska

Outstanding Postdoctoral Fellow 2020

by: Srikanta Basu

The planning for the CCR FYI Colloquium 2020 had a special vibe to it. It was the 20th anniversary of our very own Colloquium, and we had everything planned to organize a marvelous event in March. Then came the news of the Covid-19 pandemic and its prolonged lockdown, quelling all our plans. Even in these difficult times, we did not lose hope. With the help of the NCI's Center for Cancer Training (CCT) Office of Training and Education (OTE), the CCR-FYI leadership and the support from our co-operative keynote speakers, we decided to hold a virtual one-day Symposium on August 12th, 2020, via Webex. During the Symposium, Dr. Sabina Kaczanowska, winner of the Outstanding Postdoctoral Fellow (OPF) 2020, presented her work on “Rebalancing the Immune Suppression Program in Metastasis”.



In her OPF keynote address, Dr. Kaczanowska outlined her work on the role of immune-suppressive myeloid cells in generating a pre-metastatic niche in lungs; in turn, making the lung microenvironment conducive to metastasis of tumor cells. She also talked about the development of Genetically Engineered Myeloid Cells (GEMys) as a platform to enhance anti-tumor immunity, followed by its pre-clinical

and clinical applications to decrease tumor metastasis to the lungs.

The OPF award is a prestigious award conferred to a CCR post-doctoral or research fellow who has demonstrated outstanding success in their scientific career at the CCR-NCI along with providing valuable service to the scientific community. The selection of the OPF winner is highly competitive because some of the best researchers within all departments of CCR are nominated for this award by their respective principal investigators.

Dr. Sabina Kaczanowska is a postdoctoral fellow in the Tumor Microenvironment and Metastasis Section of the Pediatric Oncology Branch at the NCI under the mentorship of Dr. Rosandra Kaplan. Prior to joining the NCI, she completed her doctoral dissertation work at the University of Maryland, Baltimore in 2016, focusing on tumor immunology and T cell immunotherapy. Dr. Kaczanowska's current research focuses on the immune response to metastasis in pediatric sarcomas, a malignant tumor of bones and soft tissues, and the pre-clinical development of novel immunotherapeutic strategies for the treatment of solid tumors. Throughout her career, Dr. Kaczanowska has received numerous awards in support and recognition of her research and has published several peer-reviewed manuscripts and review articles in the field of cancer immunotherapy. She aspires to expand on the understanding of the mechanisms of tumor progression and metastasis and to contribute to

the development of new therapies for the cancer treatment.

In her keynote address, Dr. Kaczanowska talked about her research where she compared single cell RNA sequencing data from normal and premetastatic lungs of mice. She found an increase in immune-suppressive genes in the premetastatic lungs. She also discovered that the lung microenvironment was rich in myeloid cells like dendritic cells, macrophages, monocytes and granulocytes, but had decreased levels of non-cytotoxic T cells, Natural killer (NK) cells, and B cells. This downregulation of anti-tumor responses supports the homing of metastasizing cancer cells. To reverse this immune suppression program and activate T cells, she and her PI (Dr. Kaplan) thought of a mechanism to use bioengineered myeloid cells. This led to the development of GEMys as a platform to deliver antitumor factors and reprogram the microenvironment. Since, IL12 increases anti-tumor cytokine- interferon gamma production by T cells and NK cells and improves antigen presentation in T cells, she decided on using IL12 expressing GEMys. As expected, upon co-culturing with T cells, IL12-GEMys increased interferon gamma production. When used in mice, IL12-GEMys increased expression of genes associated with increased antigen processing, presentation, and immune activation while decreasing anti-immune responsive genes. She also found that IL12 GEMys increased myeloid populations especially among dendritic cells and activated cytotoxic T cells. Thus, IL12-GEMys successfully reprogramed the immunosuppressive microenvironment. Multiple in-vivo tumor metastasis experiments also demonstrated that IL12 GEMys could decrease spontaneous

metastasis to lungs by preventing the homing of tumors to the lungs. She also showed that active cytotoxic T cells play an important role in the effect caused by IL12 GEMys since antibody-based depletion of these cells decreased the immune compensatory effects. She also talked about how IL12 GEMys help decrease tumor metastasis and tumor burden by increasing immunological memory when treated in combination with cytotoxic chemical drugs. To convert these preclinical observations into clinical use, she generated genetically engineered IL12 expressing human monocytes. Interestingly, using these human monocytes in co-culture with donor matched T cells, Dr. Kaczanowska demonstrated that T cells can be activated to produce increased interferon gamma which can potentially inhibit tumor formation. Along with Dr. Kaplan, she hopes to use this great tool for clinical application in treating pediatric cancer patients. She has recently obtained a technology transfer fellowship (TTY) and plans to improve upon the clinical aspects of GEMy based treatment in the future.

We extend our deepest thanks to Dr. Kaczanowska for giving such a brilliant presentation and for providing us with a detailed outlook of her outstanding work on GEMys. We would also like to thank her for being so cooperative with the Symposium planning committee during the transition to a virtual presentation platform for our event. We wish her great success in her future endeavors.

From the Bench to the Market

by: Jessica Eisenstatt

Panelists:

Laura Prestia, Ph.D.	<i>Communications & Strategic Initiatives Manager, NCI Technology Transfer Center</i>
Sabarni Chatterjee, M.B.A., Ph.D.	<i>Unit Supervisor, NCI Technology Transfer Center</i>
Sarwat Naz, Ph.D.	<i>Senior Ambassador, Technology Transfer Ambassador Program, NCI</i>
Eric Chun Hei Ho, Ph.D.	<i>Tech to Industry (T2I) Fellow, NCI</i>

The “Lab to Market Training (Invention, Development, Commercialization, and Technology Transfer)” panel started with introductions of the four panelists. Each described their journey from the lab bench to working with the National Cancer Institute Technology Transfer Center (NCI TTC), which manages technology from the NCI and nine other NIH institutes and centers. One aspect of each story that stood out was the desire to do research that is translatable. Dr. Laura Prestia participated in an internship with her graduate school’s technology transfer center when she decided that she wanted to see how to take research from the bench to the market. She then joined the NCI TTC as a CRTA fellow before moving on to the permanent position of Communications & Strategic Initiatives Manager. Dr. Sabarni Chatterjee, Unit Supervisor at the NCI TTC, did his postdoc in a translational lab that introduced him to the commercialization aspects of science. After his postdoc, he joined an intellectual property law firm and then the NIH Office of Technology Transfer as an IRTA fellow before transitioning to the NCI TTC as a full-time employee. Dr. Sarwat Naz joined the NCI as a visiting fellow and is now a research fellow in the Clinical Center. At the NCI, she discovered that she was interested in research that moves science from

the bench to the market and benefits the public. She joined the Technology Transfer Ambassador Program (TTAP) and now serves as a Senior Ambassador, allowing her to dive deeper into hands-on experiences of the technology transfer process. Dr. Eric Chun Hei Ho is a current Tech to Industry (T2I) fellow. He joined the NCI as a visiting fellow looking to do translational research and went on to start a research project to raise antibodies against oncogenic EGFR. His journey to the T2I fellowship began with the process of patenting the antibodies, a project that he has taken into the T2I fellowship. The desire of all four panelists to perform translational science took them on different paths that all led to the NCI TTC.

After the panelist introductions, Dr. Prestia introduced the audience to the general concept of technology transfer, as “the process of transferring knowledge and materials from one organization to another to promote further development and commercialization of technology.” Technology transfer merges science with law and business to move technology from the lab to the market. It allows collaboration between academia, industry, and economic development groups, and it protects the technology through patents, copyright, and licensing.

Drs. Prestia and Chatterjee then talked about the TTAP and T2I fellowships and had Drs. Naz and Ho give their view as fellows in the programs. The TTAP program trains NIH postdoc fellows in technology transfer, biomedical invention, and commercialization. The program aims to enhance career development and maximize resources for trainees. Dr. Naz highlighted three aspects of the program that she felt were important: the knowledge base of invention and commercialization; the broad network one develops from start-ups, mid-sized to large companies, and government sectors; and the transferable skills of communicating your science to CEOs, HR, and other business-minded people. As a senior ambassador, she receives focused training to learn about the business side of science. One needs to think about what the market needs and not just what one wants to develop. The T2I fellowship is connected to the TTAP as there is some overlap in training, but the T2I focuses on nurturing “the [CCR/NCI] postdoctoral entrepreneurship and industry-focused research training, and at the same time accelerate[s] the development of an early stage invention towards commercialization.” While Dr. Ho has only recently started as a T2I fellow, he has enjoyed learning about the “other side” of science. The fellowship allows him to talk to people in industry, ranging from CEOs to directors, to find out what it takes to put technology to market and how to sell the technology with a focus on market size, not just the science. Both programs emphasize how to take the technology and market it on the business end.

The panel ended with a question-and-answer session fueled by questions submitted by fellows when they registered for the Symposium. The first question related to an NIH

employee starting a biotech company and how the T2I fellowship would be able to help with that. While the fellow can take the skills and experience from TTAP and T2I, any technology made while at the NIH cannot be used in the biotech startup. Another fellow asked if the programs allowed fellows to see the negotiation process. While that opportunity is not currently built into the two programs, if a fellow expresses strong interest, the office will work to find a way to incorporate that experience. One fellow asked if they needed recommendation letters from an academic advisor for a TTC CRTA position; panelists advised on the fact that these positions follow formats similar to any postdoc application, so letters are part of the process. The letters should come from someone who has worked with you and can speak to your character.

There were also a couple questions about technology transfer in general. One asked how technology transfer was different in academia, industry, and the government. The panel answered that the skill set that is used is the same, but the overall goals and priorities may be different. A final question concerned how to apply to a technology transfer position with no technology transfer experience. Fellows looking at technology transfer positions will be comforted to know that applicants are not expected to have technology transfer experience, but they need to show and demonstrate an interest in technology transfer. Fellows should highlight their extracurricular experiences with leadership, project management, and organizational skills when applying to technology transfer positions.

Information about the NCI TTC can be found [here](#). Find more information on TTAP [here](#) and on T2I [here](#).

Exploring Scientific Careers in Government

by: Vasty Osei Amponsa

Panelists:

Anamitro Banerjee, MS, PhD	<i>Branch Chief, Division of New Drug Products in the Office of New Drug Product (ONDP) and Office of Pharmaceutical Quality (OPQ) in the Center for Drug Evaluation and Research (CDER) at the FDA</i>
Daniel Frank, PhD	<i>Program Officer, National Institute of Allergy and Infectious Disease (NIAID)</i>
Shana Hardy, PhD	<i>Pharmacology/Toxicology Reviewer, Office of Tissues and Advanced Therapies (OTAT) in the Center for Biologics Evaluation and Review (CBER) at the FDA</i>
Miranda Paley, PhD	<i>AAAS Science Technology and Policy Fellow, Chemical and Material Risk Management Program, Department of Defense (DoD)</i>

As graduate students, we take our first steps into the scientific world. The one message that often is passed onto all graduate students is a linear career trajectory which involves being successful in graduate school, completing an excellent post doctorate training and landing a faculty position in academia.

Most of the time, we are intimidated by the negative perception of interest in non-academic scientific careers. As a result, we tend to accept this paradigm and miss on opportunities to discuss and explore the entire scientific job landscape. One of the panels in this year's CCR-FYI virtual symposium aimed to break this paradigm and expose fellows to "exploring scientific careers in government". This workshop provided the trainees an overview of various scientific job opportunities within government but outside academia and industry.

In order to highlight the scientific-related opportunities in government, four panelists representing different government agencies discussed their career trajectories and critical

points to consider while transitioning from bench to non-bench careers within government.

Dr. Anamitro Banerjee is a chemist who currently serves as the Branch Chief in the Division of New Drug Products at the FDA. He joined the agency in 2008 after two years post-doctoral experience at Cornell University followed by seven years faculty position at the University of North Dakota. A typical workday of Dr. Banerjee includes attending several meetings and evaluating reports. He ensures that all Investigational New Drugs (INDs) and New Drug Applications (NDAs) meet the requirements for quality controls established by the FDA.

If you are interested in federal jobs, Dr. Banerjee emphasizes one key element that you need to do is networking and reaching out to people you know in the regulatory agency of interest. Using himself as an example, the opportunity to work at the FDA came by after Dr. Banerjee contacted a friend within the FDA to inquire if they were hiring. It just so happened that the

agency was searching for a chemist. This facilitated his transition to the agency.

Dr. Daniel Frank serves as a Health Science Administrator and Program Officer at the Division of AIDS at NIAID. During his post-doctorate, he worked on infectious diseases focusing on the role of cytochrome P450 enzymes and cholesterol metabolism in *Mycobacteria tuberculosis*.

For Dr. Frank, a key to the transition from bench to management-like positions is becoming an interdisciplinary scientist. He highlighted the importance of being a team player and reinforcing your skill sets outside your research field to be able to engage with people from different scientific and non-scientific backgrounds.

Dr. Shana Hardy is a pharmacology/toxicology reviewer in the Office of Tissues and Advanced Therapies (OTAT) in the Center for Biologics and Review (CBER) at the FDA. In her daily tasks, she is involved in the pre-market evaluation and approval of biological products that have potential therapeutic benefit. Dr. Hardy completed her post-doctoral fellowship at the National Institute of Standards and Technology (NIST). She learned about an open position at the FDA during an American Society for Gene and Cell Therapy (ASGCT) meeting. Since her scientific background and skills in genome editing systems matched what the FDA was looking for, she was able to do an informational interview followed by an official interview to land a position.

According to Dr. Hardy, a fundamental question that you need to address when it comes to scientific career choices is whether you want to stay away from academia or from benchwork. It is important to determine what you really want since avoiding academia does not necessarily

translate into leaving benchwork. You can go into industry or government positions and still do benchwork. In the regulatory field, although you apply your scientific knowledge and technical skills, you completely step aside from benchwork. In this field, more emphasis is put on your communication skills, your ability to write and convey scientific knowledge in a multidisciplinary environment.

Unlike the other panelists, Dr. Miranda Paley transitioned to her current role as a science writer after completing graduate school. Her initial exposure to this career path was through a science communication internship at Janssen pharmaceuticals. The experience at Janssen also allowed her to build project management skills. After completing her training, she landed a job at the American Chemical Society (ACS), where she joined the editorial team for the ACS's journal called "ACS Central Science" and eventually moved up in position to become an editorial team manager. Furthermore, she served for two years in the Office of the Deputy Assistant Secretary of Defense for the environment providing communication expertise as an AAAS Science Technology and Policy Fellow. She currently works in a non-profit consulting firm, providing expert analyst support to the Department of Homeland Security.

When considering regulatory affairs as a career path, Dr. Paley said that it is fundamental to leverage the experiences you gained during graduate school and post-doctorate in a way that can help brand yourself and stand out amongst other candidates. For instance, if you work in a multidisciplinary environment, learning new techniques and participating in different/collaborative projects create the

opportunity to build and shape your “marketable” skills set.

Ways to get exposure to regulatory careers

As Dr. Banerjee stated, “When it comes to regulation, you basically learn on the job.” Because of the dynamic and evolving aspect of regulation and policy, the jobs in these fields present continuous learning curves, even when you are already on the job. Nevertheless, according to the panelists, if you want to understand how regulatory agencies work, then internships are a good starting point. Moreover, based on her experience, Dr. Paley said that internships set you apart from other candidates and highlight your resume.

Like in all career choices, networking is a key factor. Having an acquaintance within the agency of interest can be an easy route to get your resume into the system. Additionally, doing informational interviews and talking to people that share similar interests in that field can also increase the chances of getting some exposure to the field and even having your resume reach the HR.

Other routes to consider are applying for regulatory specific fellowships like the Oak Ridge Institute for Science and Education (ORISE) fellowship, which places fellows at the FDA; the AAAS Science and Technology Policy

Fellowship, which places fellows in the executive branch; and the National Academy fellowship. According to both Drs. Banerjee and Paley, most fellows are hired by the agencies at the end of their fellowship. Alternatively, you can also directly apply to federal jobs advertised on USAJobs.gov. Because federal resumes are different from ordinary resumes, the Office of Personal Management (OPM) offers federal resume webinars to assist you in the preparation of applications for federal positions. If you plan to apply for jobs through the USAJobs portal, Dr. Paley advises to identify the key words and competencies in the job description and use them to tailor your resume to match the job.

It is noteworthy that most of the time to be eligible to apply to federal jobs, you have to be US citizen or a permanent lawful resident. This limits the job opportunities for foreign nationals when it comes to regulatory affairs, and while exceptions exist, it is important to check the job requirements on a case-by-case basis.

Overall, when trying to embark on a career change, there are few key points to consider: networking, internships, informational interviews and interaction with people within the agency you are interested in joining. These efforts help the candidate build their targeted resume which keeps them in the spotlight.

So, you want a career in academia: tips from the professor

by: Molly Congdon

Panelists:

Colleen Connelly, Ph.D.	<i>Assistant Professor, Department of Chemistry, Union College</i>
Danielle Dube, Ph.D.	<i>Director, Biochemistry Program, Professor, Department of Chemistry and Biochemistry, Bowdoin College</i>
Valerie Fako Miller, Ph.D.	<i>Director (Designate), Office of Postdoctoral Affairs, Office of the Vice Chancellor for Research, University of Illinois at Chicago</i>
Myles Poulin, Ph.D.	<i>Assistant Professor, Department of Chemistry and Biochemistry, University of Maryland College Park</i>

This year has been a wild ride, full of unexpected teleworking and looming uncertainty towards the future. For fellows preparing to transition to the next stage of their careers, this uncertainty has added extra stress to the job search and potentially altered their career trajectory. Adjusting to the SARS-CoV-2 pandemic, the Center for Cancer Research Fellows and Young Investigators (CCR-FYI) held a special symposium featuring career workshops and panels that were originally scheduled for the 2020 Annual CCR-FYI Colloquium.

This year's academic career panel featured panelists at various career stages from primarily undergraduate institutions (PUI), large research universities (RO1) and non-traditional career paths. The academic career panel focused on preparing to transition from a postdoctoral fellowship to a traditional or non-traditional academic career. During the panel, several key themes were highlighted by the panelists: expanding your skill set, time management, networking and patience.

The importance of expanding your skill set and gaining training experience is a value familiar to NIH fellows as numerous workshops and events are frequently advertised via email to fellows by

the CCR-FYI, CCT, OITE and NIH leadership. This general idea was also emphasized by Dr. Connelly and Dr. Miller. "I think many people think about the job search as something that you do towards the end of your postdoc, but it's really something that you should start thinking about at the beginning of your postdoc," Dr. Miller stated. It is important to identify areas where you need to gain or improve your skill set and find ways to obtain that experience. For example, Dr. Connelly participated in the Scientists Teaching Science course offered at the NIH in order to expand her teaching skills and experience before applying for academic positions. Dr. Miller joined the CCR-FYI steering committee, NIH Fellows Committee (FelCom), and worked a detail in the Office of the Director in the Center for Cancer Training (CCT) during her postdoctoral fellowship. Participation in these organizations allowed her to experience the administrative side of education and increase her "soft" marketable skills. These experiences also helped Dr. Miller realize that she desired a "non-traditional" academic career instead of the standard tenure-track professorship path.

Time management is an extremely valuable skill, especially when it comes to preparing for an academic career. The process for obtaining a

tenure track academic position begins over a year in advance of starting the position. For example, a position beginning in the fall of 2021 will begin accepting applications in the fall of 2020. If you are applying to universities outside of the U.S., the positions may be posted even earlier in the calendar year. This means that you need to be preparing your application packages well in advance. This fact was highlighted by Drs. Connelly, Dube, and Poulin. It takes a substantial amount of time to fully outline research ideas and to clearly present them to the broader audience of an academic department. The panelists also stressed the importance of modifying your application to the specific school and department that you are applying to. Although this involves more work upfront, it shows the hiring committee that you know the institution, its capabilities and its needs. In the end, every institution wants to hire someone that is a good fit and can complete the job. The more successful you are at showing that you fit with the institution, the stronger your application will be. The same principle applies when applying to non-traditional academic positions. In your application, you want to highlight the skills you have that will allow you to excel at the position.

We have all heard that networking is vital for career advancement. This is true for every sector of the job market, including academia. Dr. Miller obtained her first position after her postdoctoral fellowship through her network and conducting informational interviews. As Dr. Miller stated in the panel, "Informational interviewing and networking is very, very powerful." Your network is not just who you know, it is who your connections know as well. A friend of a friend may help you obtain your next position. Having attended larger universities while earning her degrees, Dr. Dube realized through networking with professors at conferences that she desired a career at a smaller

PUI university. By networking, she was able to realize what type of academic institution she wanted to pursue for the next stage of her career. Dr. Dube was also able to reach out to contacts from PUIs that she had met through networking and have them look over her application materials. This opportunity provided her with key feedback from people who had served on PUI faculty search committees in previous years and made her application packages stronger.

As Dr. Poulin stated, "In academics, the job market changes from year to year... you can't expect that the positions that you see advertising one year will be similar to what you see in future years." As a result, it is best to apply to positions that seem like a good fit when they are posted. Once you start the process, patience is key. It takes a while, sometimes a few months, for search committees to respond to applicants. "You probably [will] never feel a hundred percent prepared for the job market," Dr. Poulin stated. The road from preparing your application to accepting a position is long and includes a lot of work preparing proposals and packages, multiple interviews and negotiations. For Dr. Miller, it took approximately 8 months from when she began looking for her first position after her fellowship to when she started her position. Her advice to all fellows preparing to enter the job market, "Start the process [of searching for a job] earlier than you might think is necessary, especially if you're looking towards transitioning." For those hesitant about applying this year, Dr. Poulin simply summarized, "If you don't apply, you're never going to get a chance to get [a job]."

If you are ready to search for academic positions, our panelists recommend starting your search with LinkedIn, Chronicles of Higher Education, Chemjobber, postings in your field's scientific societies and individual university pages.

Acing the Academic Interview

by: Babul M. Ram

The dramatic rise in the number of PhDs awarded in science, technology, engineering, and mathematics (STEM) over the past three decades (Cyranoski et al., 2011; Ghaffarzadegan et al., 2015), remains unmatched by the constant number of faculty jobs. This has rendered the academic job market increasingly competitive with a surplus of applicants per academic position. It has thus become crucial for the applicants to meticulously work on every factor that influences the hiring process to land a faculty position. A typical academic job application consists of a cover letter addressing the search committee, a teaching philosophy statement, a CV, and a research plan. The shortlisted applicants are invited for further evaluations by an online and on-campus interview, a job seminar, a chalk talk, and a teaching demonstration. Interviews are used by the academic search committee to assess the personality, leadership quality, teamwork, problem-solving abilities, and conflict resolution. The applicants can simultaneously capitalize upon this opportunity to complement their necessary skills, qualifications, experiences, potential and project themselves as a strong contender for the position. Therefore, it can be very helpful to consider just how interviews are conducted as you prepare for the job application.

The CCR FYI special symposium hosted a session to help with this step. The workshop was facilitated by Scott Morgan, a Senior Associate at the Center for Strategic and International Studies in Washington, D.C. The session focused on a comprehensive understanding of the components of an academic interview including the basic category of questions, the thought

process of the interviewers, and the most effective techniques to address them.

Scott started by broadly classifying the commonly asked interview questions into various categories and discussed them in detail with specific examples for better understanding as follows.

Personal Background:

“Tell me about yourself?”

This is a common introductory question to know the candidate as a person beyond the academic qualifications. Scott recommended answering with a single vivid example such as talking about the places you grew up or have lived and any fond memory of those places or associated activities to make it interesting, instead of stating a chronological set of events. The use of self adjectives (e.g., hardworking, reliable, etc.) should be avoided and you should try to paint a picture that represents those adjectives as you embody them.

Academic Background: “Tell us about your academic qualifications”

While speaking about the academic qualifications, you should avoid simply reciting information from your CV. Scott pointed out the importance of verbally adding more value to what you already listed in the CV, and highlighting some specific meaningful moments from your academic career such as sharing a relatable anecdote from your grad school or publishing your first research paper.

Specific field motivation: “Why do you want to work in this field/shift to another field?”

This category of question is framed to understand the motivation and thought process behind the candidate’s decision making. As Scott stated, you need to ask yourself, “How do I know I want to work in academic research?” While answering, it is important to highlight something besides what is detailed in your CV that interests and motivates you to work in the field.

Five Year Plan: “Where do you see yourself in 5 years?”

Another common question is to inquire whether the candidate has a vision for their future. Scott emphasized focusing on feasibility and clarity of the plan, and displaying commitment towards the plan by using present tenses. It is important to show that you have thought through the viability of the plan (e.g., getting full tenure, or a grant) in terms of the funding and resource availability, technical requirements, expertise, and timelines. “It’s a good idea to paint a future picture of yourself with your plan,” he stated.

Current Work: “What contributions does your research make to your field?”

This category of questions is directed specifically at the candidate’s research work and certain key points should be kept in mind while responding. The work must give a glimpse of the bigger picture and be relevant to the research goals of the organization as well. Scott recommended a funnel-down approach by always starting with the larger scientific question that the candidate is addressing through their work and the shared relevance to the institute or department. This should be followed by

specific pathways or processes and then to further molecular levels. He also gave prominence to providing rationale for each step and concluding with the big scope unanswered scientific questions one plans to address in the future.

Strengths and Weaknesses: “What are your strengths/weaknesses?”

The purpose of this type of question is for the candidate to display self-reflection and self-awareness. Scott advised answering by talking about the weakness and pointing out the steps being taken to address it. When talking about the strengths it is good to start with technical points such as solving a technical problem or troubleshooting a crucial experiment while avoiding projecting oneself as a perfectionist.

Why you?: “Why should we hire you?”

This type of question is framed to understand the motivation behind the job. Scott stated, “Before answering, you need to ask yourself why do I do what I do?” Scott recommended answering with something that drives you for the job apart from having the required qualifications and expected remunerations. He suggested concentrating on a single motivational factor (e.g., losing someone to cancer) and display passion for the job. Try to relate and explain how this job will justify your specific field motivations.

Why them?: “Why do you want to work in this department?”

The interviewer seeks to understand why are you interested in them and what you think of their goals. Scott emphasized researching the institute/ department beforehand and reflecting on what makes them special to you. It is also

crucial to highlight that your research plan fits within and complements the goals of the department.

Hypothetical questions: “How will you handle an authorship conflict with your co-worker/ Tell us about the last time you had a difference of opinion with your supervisor?”

These types of questions usually start with a hypothetical situation or inquire about any past actual situation such as ethical or behavioral situations and how the candidate has dealt with it. These are framed to know the thought process behind dealing with different conflict resolution situations and issues. Scott suggested that the answer should display one’s rational thinking, problem-solving, and decision-making abilities.

Technical questions: “What do you think of this particular technique?”

Technical questions are meant to assess the relevant technical skills and knowledge required for the job. Scott advised answering with a vivid example by sharing one’s experiences with a technique. Additionally, he suggested talking about the pros and limitations of the technique to display the mastery of the technique and critical thinking.

Virtual Interviews

Given the relevance of virtual platforms during the pandemic situation, Scott also spoke about certain key guidelines to be aware of during virtual interviews. He recommended the use of proper front and side lightings with a professional and distraction-free background. It

is also vital to use pieces of equipment properly adjusted to ensure audio-visual clarity and avoid any setbacks or interruptions during the interview. He further stressed the importance of displaying enthusiasm and preparedness for the interview by dressing professionally, using layered clothing and brighter colors, and avoiding any fashion faux pas.

Towards the end of the session, Scott reiterated that interviews are essentially a two-way process, and highlighted the importance of candidates having some questions prepared for the interviewers. Therefore, it is vital to research the institution/organization beforehand to display interest and enthusiasm. It is also recommended to follow-up with a thank-you email to the interviewers after the interview.

A job offer is a responsibility, not a reward

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Careers in Industry

by: Dorothy Butler

Panelists:

Judy Costello	<i>Managing Director, Economic Development, BioHealth Innovation</i>
Neelima Rao	<i>VP Human Resources, Global R&D, AstraZeneca</i>
Anthony Saleh	<i>CEO, miRecule</i>
Stephanie Major	<i>Director, Talent Management, Novavax</i>
Ed Radwinsky	<i>Head of People Operations, RoosterBio</i>
Rini Pek	<i>Analyst, BioHealth Innovation</i>

Many PhD scientists face the dilemma of choosing a career in academia or a career in industry. Researchers who choose careers in industry have a wide array of options including bench research, translational research, marketing positions, and business planning. Furthermore, companies range in size and overall mission. With so many options and variability, it is important to know what one values in a company but also to be flexible and open to change.

The CCR-FYI Symposium 2020 hosted a panel discussion focused careers in industry. While the Careers in Industry panel was originally planned to be a workshop focused on interviewing essentials for non-academic positions, it grew to become a panel discussion around careers in industry in the general sense, because there are so many different facets to finding the right position with the right company.

The panelists worked at companies of all sizes and this allowed for a broad perspective on the opportunities to pursue a scientific career outside academia. The speakers included Judy Costello and Rini Pek from BioHealth Innovation, a non-profit organization that supports early to mid-stage startups; Neelima

Rao from AstraZeneca, a large, multinational biopharmaceutical company; Anthony Saleh from miRecule, an early stage biotechnology company developing microRNA-based therapeutics; Stephanie Major from Novavax, a late stage biotechnology company focused on vaccine development; and Ed Radwinsky from RoosterBio, a start-up stem cell manufacturing company focused on regenerative medicine. The panelists hold positions at different levels within the companies, hence providing insights ranging from a young professional to a vice president of human resources.

Judy led the panel discussion asking the participants about the relevancy of hiring postdoctoral fellows, what skills hiring managers are seeking, what an online interview would entail, and advice they would offer to the fellows. All the panelists agreed that postdoctoral fellows bring innovation, creative thinking, and knowledge of new and developing technologies that are critical to the development of companies, both small and large. However, the hiring process is different for national and international fellows. While many of the smaller companies do not have the means to sponsor visas, the larger companies can work with international trainees for visa

applications. For instance, miRecale, one of the smaller companies, once tried to sponsor a visa, but didn't get approved. Sometimes the need to fill a position in a short period of time does not allow for the extra wait needed for the visa paperwork get through the proper approval process. Although it is always a good idea to ask about visa sponsorship support upfront before putting in a lot of work on an application, since timelines can be so unpredictable, it is important to start the application process well before the tail end of a postdoctoral position.

In addition to candidates having the expected scientific expertise, the panelists spoke to the importance of company culture and personal fit within a company. Company culture is a set of shared values, goals, and attitudes that shapes the way an organization functions. Neelima detailed some of AstraZeneca's immersion plan for new hires to help them learn where they best fit and understand the long-term needs within the company. She spoke about the need for scientific rigor and passion, and working within a larger team to successfully get a drug into the market. Ed spoke about the emphasis that his hiring team places on the cultural fit of a potential applicant. At RoosterBio, their culture includes the use of fun puns, such as using the term "roosters" when talking about their employees.

Stephanie and Ed gave some great pointers for online interviews. Stephanie suggested to test the video call software and to practice looking at the camera, so it feels like you are connecting with the people on the other end of the call. Ed reminded future interviewees to be mindful of what is behind you and to know your audience.

Neelima chimed in and encouraged the fellows saying that everyone has had to adapt, so just bring your best self and be confident in front of the camera.

To close the panel, they each gave some final advice. Neelima suggested to list accomplishments on your resume/CV in a measurable way. Stephanie emphasized the importance of networking and how LinkedIn can be a great resource in times of diminished in-person gatherings. Ed acknowledged the difficulty of trying to find a job but stressed the importance of determination and showing grit. Anthony added that it could be a long slog to find a job, no one expects you to have all the answers, and to be honest with yourself about your career interests and plans. Rini, the youngest of the group, said transitioning is not easy and advised highlighting your transferable skills because the people you will be seeking jobs from are often more heterogeneous than those in an academic setting.

Even though career decisions can seem daunting, there are some important considerations that the panelists highlighted. One of the most important factors is understanding your own values so that you can find a company with a culture that fits you. Part of this includes being yourself during interviews, both virtual and in person, and doing your due diligence to learn about the company. Also, remember that there are many others who have debated their own career path decisions or who are currently trying to figure out their next steps. Do not be afraid to reach out to your network to help you along the way; you are not on the journey alone.

Workshop by the Division of International Services (DIS)

What the office offers, coping with policy changes and surviving the COVID

by: **Sunita Chopra**

In a highly informative workshop entitled “What the DIS can do for you,” Mr. Candelario Zapata, Director of the Division of International Services (DIS) offered detailed perspectives on various topics of current interest to international trainees at the NIH. Mr. Zapata elaborated on how their office helps international researchers at various stages in their career, how the DIS is coping with the changes enforced by the ongoing pandemic, what policies have changed, and offered critical advice to visiting fellows planning their future careers.

The DIS office facilitates recruitment of researchers into visiting programs by working closely with the respective lab’s Administrative Officer at NIH and ensures smooth entry into the US. While they continue to process new requests, the office’s current challenges include the ever-changing policies enacted by Presidential proclamations and remote working. The office is doing its best to stay on top of things to offer best advice and service to the visiting scientists.

Policy changes due to COVID

Under normal circumstances, visiting fellows (VF) in their 5th year can apply for a six-month extension subject to the penalty that they have to leave NIH for two years. To accommodate and acknowledge the fact that the pandemic has put an unexpected halt to everybody’s progress and prospects, an updated NIH policy allows six-month extension for VFs in 4th and 5th years without incurring any penalty. VFs already in their 6th year could also request a six-month extension but they will become subject to the

two-year bar. Fellows who have been at NIH for less than three years will be able to file for a six-month extension in their 4th-5th year without incurring the penalty. The office however needs between three to six months to process any requests for extension. The Department of State granted a 60-day extension to certain J-1 Exchange Visitors who are approaching their maximum time in the J-1 program to provide flexibility, enabling fellows to complete their education, make travel plans, etc. They continued to get automatic stipends and health insurance for that period.

Non-immigrant visa services

While visa services were suspended for some time for non-immigrant visas (J1, F1, O1), routine operations resumed with a Presidential proclamation on July 14, 2020. Premium processing to expedite H1B and I140 applications was also suspended. However, beginning in June 2020, premium processing is being reinstated in phases. On June 22, 2020 another Presidential proclamation suspended processing of all H1B, L1 and certain categories of J1 visas for foreign scientists overseas. These suspensions did not affect those already in the US seeking an extension or change of their visa status. DIS office has been continually trying to bring in some H1B researchers, staff scientists and tenure-track investigators under the exemption for those “whose entry would be in the national interest.”

Immigrant visa services

Another Presidential proclamation suspended entry of immigrants applying for immigrant

visas overseas (i.e., individuals seeking green cards overseas). The proclamation does not impact foreign nationals already in the US seeking to extend or change their current immigration status, or to adjust status to lawful permanent resident while inside the US. The proclamation also contains exemptions for health-care providers such as physicians, researchers and other individuals involved in the containment or mitigation of COVID-19.

Moving forward

Mr. Zapata advised the VFs to start planning well in advance for their future careers, irrespective of whether they want to stay in the US or return to their home countries. If a fellow wants to stay in the US, it is extremely important to know the time limitations imposed by different visa types, especially J1 waivers or H1B filing, whether from NIH or another employer. Regular processing times for H1B visas is 8-9 months, but policy changes and other external factors may significantly impact these estimates. Hence, one must plan the next move judiciously

and in a timely manner. Another useful tip is to save copies of all accomplishments and achievements in the form of letters, emails, certificates, etc., as well as all immigration documents. This documentation ensures a strong case when filing for visa status changes or extensions. Besides, it is important to understand your responsibilities as an international trainee. It is essential to be aware of current immigration status, employment status, employer sponsorship policies, J1 two-year home residency requirement and J1 waiver policy among other relevant policies and restrictions. Mr. Zapata encouraged the VFs to contact the DIS office should any clarifications be required. DIS service hours are 8:30 am - 4:30 pm and appointments can be made on DIS@mail.nih.gov. Currently all advice is offered virtually, with 'virtual walk-in' consultation via Zoom also being offered from Monday through Thursday between 1:30 pm- 3:30 pm. Further details can be accessed on the DIS website. [<https://www.ors.od.nih.gov/pes/dis/Pages/default.aspx>].

Color Vision in Science: An Inclusive Approach to Science Communication

by: Dipak K. Poria and Sounak Sahu

An optimist is a person who sees a green light everywhere, while a pessimist sees only the red stoplight... the truly wise person is colorblind. - Albert Schweitzer

Benn was very excited about his first summer internship in a molecular biology laboratory. This would be an opportunity for him to unravel the apparently invisible world of biomolecules. It was not his first research experience. He had productively spent the preceding summer in an ecology laboratory, mostly working in field settings. For this summer internship, he was advised to venture into the study of genetic variations of a gene locus in different organisms and study their evolutionary relationships using standard molecular biology techniques like PCR amplification, sequencing and sequence alignments. He had also been encouraged to participate in weekly group meetings and journal clubs. During a journal club presentation by a senior lab member, Benn found that the journal article contained fluorescence microscopy images to show the localization of two proteins in a cell, shown in green and red respectively, and a superimposed image represented the colocalization of the two proteins. Since childhood, Benn was aware that he has a unique genetic makeup in the genes that encode protein called opsins that allow him to see visible color spectrums differently from most of the others, a condition commonly known as hereditary red-green [color blindness](#).

But it was a “moment of discovery” for him that the scientific groups, the current lab, and the authors of the article, were using the red-green pseudo-colors to communicate scientific data, seemingly unaware of the fact that this information would not be accessible to people who shared genetic makeup like him. He later found out that this practice is convention rather than an exception amongst the scientific community.

Like Benn, 4.25% of the world population carries some form of genetic color vision-anomaly, with a higher prevalence of the difficulty in perceiving the red and green spectra. The scientific community fairly represents a similar population distribution (1). Those scientists might also have been through a “moment of discovery” at some point in their career. Back in the 18th century, John Dalton, the renowned English chemist, best known for his atomic theory and gas laws, had documented his color vision anomalies in a scientific paper entitled “Extraordinary Facts Relating to the Vision of Colours: With Observations” published in 1794 (2). Other popular personalities of recent times, such as Mark Zuckerberg and Bill Clinton, also reportedly experience color blindness.

Color vision anomalies are X chromosome-linked recessive traits exhibited by as many as 8% males and 0.5% females. Women can also carry the trait as heterozygous recessive condition (3). In most cases, the condition is self-recognizable, and for others a standard [color plate test \(Ishihara’s test\)](#) is used as a diagnostic tool. Colorblindness is usually

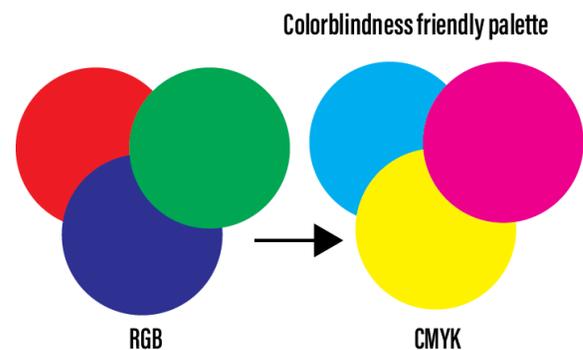
misconceived as visualizing in black-and-white only. Instead, it refers to the difficulty or inability to distinguish two nearby colors within the visible light spectra. Over the years, researchers have now understood most of the genetic, developmental, and mechanistic aspects of the hereditary color blindness (for reviews refer to (1, 4)). However, surprisingly, this knowledge is not yet widely utilized in science communication, neither in publications nor presentations. Communicating science to a wider audience in an accessible way is necessary to promote awareness and credit the hard work of researchers. After those sleepless nights and early morning experiments, the inability to engage an audience and effectively communicate findings is a source of frustration. For example, the co-localization of two proteins (marked in red and green) in a cell is not perceivable by those who have colorblind vision. A survey by the American Society of Cell Biology predicted that one in 12 men and one in 200 women misinterpret scientific publications due to inaccessible figures with different color combinations (1). Red-green color combination is classically used in science for, but not limited to, heatmaps of gene expression, protein localization, and line plots. While a normally functioning eye can perceive a stark contrast, colorblind vision fails to recognize it.

Is there a solution? It takes a village!

There is no treatment for this genetic variation. However, there are several tools and techniques to rectify this problem in visual science communications. Color-correcting glasses or mobile applications are currently available. The use of the Cyan-Magenta-Yellow-Key (Black) [CMYK] combination (Figure 1) instead of the Red-Green-Blue (RGB) mode in scientific media provides for more inclusive communication.

Indeed, this is not a tedious job to accomplish. All it takes is a simple click to change to another pseudo-color using [Fiji-ImageJ](#) or a [color universal design \(CUD\)](#) in Adobe Illustrator and Photoshop. Graphical editors of many international peer-reviewed journals have changed their policy of article submission to be colorblind-friendly. However, the entire scientific still requires a holistic approach to make publications more inclusive and accessible. Making scientific documents accessible is a worthwhile task not just to be more inclusive. Let us not take the risk of getting a rejection of your next grant application or publication because it went to a reviewer who is colorblind and failed to appreciate your recent breakthrough.

Figure 1.



Opinions from scientists

In the process of writing this article, we have interviewed few scientists from the NIH intramural research program, and they have shared their experience on the subject. A senior scientist at the National Cancer Institute (NCI) discovered his color vision anomalies during his early childhood and learned to adapt to the condition in most social contexts. He mentioned that the vision anomaly did not directly impact his early research works, because the tools did not use color representations. However, with the profound revolution in biomedical research

techniques, he often finds it difficult to interpret certain data presented in color contrasts during formal presentations and in some publications. Another senior scientist at NCI mentioned that her father was color blind. Yet, she never gave much thought to the issue in science communications until she was alerted to it during her early years as independent scientist by a colleague who was color blind. An early career postdoctoral scientist from NIAID mentioned that she has regular color vision, but she was aware of the unusual color vision by some people from her school days. “Nevertheless”, she added, “I do not actively follow the color inclusive data preparation methods, partly because of the scientific culture I was exposed to in my earlier research group. However, I do believe that this needs to change.” Another postdoctoral scientist from NCI says, “Unfortunately being a colorblind scientist, I feel left out of many scientific presentations or publications. However, I try to spread awareness in my research groups about the color inclusive ways of making figures. I see the things are changing in a positive way.” He added, “My previous research group is now all color inclusive”. According to a senior scientist at the National Eye Institute, “The red-green color blindness is fairly well recognized among specialists and in general among the medical field and biomedical research as well.” When asked about remedies he added, “There are plenty of guidelines and online tools for presentations to people with disabilities, including red-green color blindness.” Some of the resources and tools are included here in the

references and links for educational purpose. Let’s all put our hands and eyes together to give our discoveries the most inclusive colors deserve.

Suggested readings

- See how the colorblind see the world: [Color Blindness Simulator](#)
- American Society for Cell Biology: [How to make scientific figures accessible to readers with color-blindness](#)
- [Tips for designing scientific figures for color blind readers](#)

Tips from Publishers for your next manuscript or grant

- Elsevier: Submitting your next manuscript
- Data Visualization with Flying Colors: <https://thenode.biologists.com/data-visualization-with-flying-colors/research/>
- Create Accessible Digital Products
- Video series: [How to Author Microsoft PowerPoint Presentations for Accessibility](#)
- Video series: [How to Make a Section 508 compliance Document in Microsoft Word](#)

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Frederick Diversity Committee: Stronger together

by: Mukta Nag

I remember sitting in front of our PCR machine in lab at 2 am during my PhD and wondering *“What options do I have after my PhD?”*, *“Should I do a post-doc?”*, *“What’s next after my post-doc?”*, *“How long should my post-doc last?”*, *“How can I become a PI?”*, *“How do I transition out of lab-bench work?”*, *“Are my skills transferable to other job roles outside of the lab?”*, *“How do I network?”*, *“How difficult is it for a person of color to succeed in academia?”*, *“How are women treated in academia and industry?”*

Most trainees in their early stages of their career have a myriad of such questions with limited or no answers, leaving them confused and demotivated. A large portion of these budding scientists also face challenges unique to minorities, where lack of appropriate guidance from their mentors results in lower self-confidence and a general feeling of dissatisfaction from their academic pursuit. These questions of self-doubt and the paucity of supportive mentorship from direct supervisors contribute to high attrition rates from post-doc to tenure-track positions, which is disproportionately large in women and underrepresented minority groups. Therefore, it is critical to have diverse mentors, particularly ones that can understand the current landscape of minorities to help trainees navigate through the system, setting them up for success. This also highlights the need for professional and personal development programs within institutes that promote acceptance and respect for each other’s professional and cultural uniqueness. This article discusses one such

initiative established at the Frederick Campus of the National Cancer Institute (NCI).

“Our ability to reach unity in diversity will be the beauty and the test of our civilization.”
Mahatma Gandhi

We, at the Frederick Diversity Committee (FDC), strive to stand up to the test within the Frederick Campus of the NCI. The FDC constitutes an enthusiastic group of post-doctoral fellows, graduate students and post-bacs from Fort Detrick and the Advanced Technology Research Facility (ATRF) that aim to promote diversity and inclusion in the Frederick campus. We believe, our workplace should be a reflection of the cosmopolitan world we live in, a melting pot of diverse cultures, ideas and beliefs. Diversity in the workplace improves the quality and scope of scientific discussions, allows leadership to put forth inclusive policies and a better tailored support system for minority trainees. We aspire to engage the NCI Frederick trainees to embrace diversity in all aspects of life, such as cultural, professional and personal in an effort to build a more well-rounded scientific workforce. To facilitate equity, diversity and inclusion awareness, the FDC organizes multiple networking, mentorship and social events on the Frederick Campus.

One such professional development event organized by the FDC is the Mentor-Mentee Mixer. Started in 2018, the Mentor-Mentee Mixer is a bi-annual event that is a spin on the “speed-mentoring” format of networking. The

mixer creates a relaxed set-up for mentees, (ranging from fellows to graduate students) to interact with mentors from different career paths, including academia, pharma and biotech industries, technology-transfer, policy, regulatory bodies, entrepreneurship, government- research and administration, just to name a few. The mixer allows trainees to ask their burning questions in a one-on-one session with their mentors of choice based on their fields of interest. This event provides a unique opportunity to the trainees to widen their awareness of the various career options available, the path to reach their target career goals and simultaneously expand their network of mentors; which are very important pillars of career development. Through the mixer the FDC aims to embolden trainees by facilitating diverse

mentor-mentee connections. These connections often lead to a valuable mentorship relationship outside the lab where the trainee works thereby cultivating a culture of diversity in professional training at the NCI.

For more information on the FDC and to read about all our future events, check our website: <https://ncifrederick.cancer.gov/diversity/>.

If you're someone who wants to make the NCI scientific community a better, more diverse place, feel free to reach out to the FDC. Looking forward to getting "Stronger together" with you!

A Conversation with Ned Sharpless: The Future of Equity and Inclusion in Science

by: **Gloria Garcia, Alfonso Lopez Coral, Marena Niewisch, Janeth Sanchez, Joanna Thomas**

As the leading federal agency for cancer research in the United States, the National Cancer Institute (NCI) provides training opportunities for young investigators across different research stages, from high school students to postdoctoral trainees. The NCI's commitment to developing the next generation of leaders in cancer research is supported by Dr. Ned Sharpless, Director of the NCI, and is embodied through the inclusion of fellows across the 30 divisions, offices, and centers at the NCI.

The [Diversity Career Development Program \(DCDP\)](#) is a competitive one-year immersive fellowship program for talented postdoctoral trainees at the NCI including, but not limited to, those from underrepresented and disadvantaged population groups. The goal of the program is to empower these postdoctoral trainees and help them reach their maximum potential during their time at the NCI. Its curriculum features didactic and interactive sessions focused on developing and refining skills necessary for professional and personal development. In addition to training, mentorship, and networking opportunities, DCDP focuses on building a sense of community and empowering a diverse group of postdoctoral fellows. Since its inception in 2016, it has been successfully directed by Dr. Ofelia Olivero and coordinated by Mr. Francis Steele.

On September 9th, the 2020 DCDP fellows cohort met with Dr. Sharpless to discuss several topics, including professional development for

the NCI trainees from diverse backgrounds and identifying ways to promote diversity and equity at the NCI. Unlike previous years, this annual meeting between Dr. Sharpless and the DCDP fellows was virtual. Dr. Sharpless was pleased and excited to hear that, despite the COVID-19 pandemic forcing many training programs online, the 2020 DCDP cohort was able to successfully adapt to the changes by creating a robust support system. As Dr. Olivero has frequently said, "I consider this cohort my resilient cohort."

The DCDP and Dr. Sharpless are both committed to building a more inclusive and diverse scientific workforce; encompassing training opportunities for international postdoctoral fellows at NCI and global cancer research collaborations, such as the Cancer Grand Challenges partnership with Cancer Research UK (CRUK). One key point of discussion was how to enhance equity in all of NCI's efforts. Dr. Sharpless was extremely candid and outlined three major goals of the newly established NCI Equity Council: (1) increasing research to address cancer health disparities, (2) ensuring equity in the cancer research workforce, and (3) promoting an inclusive and equitable community within NCI. Dr. Sharpless spoke proudly of the NCI's efforts: "Understanding the nature of cancer health disparities is really important to the National Cancer Institute research mission and it has been for many years. Frankly, I think that's an area where the NCI does have some good

examples to talk about." In this country, racial disparities for cancer outcomes have been improving, but the disparities between rural and urban communities appears to be getting worse. According to Dr. Sharpless, "Rural patients in the United States do less well than patients that live in urban areas. That disparity worsens every year, and we believe that has a lot to do with access and education." The NCI Equity Council will identify research gaps and promote cancer health disparities research by both intramural and extramural investigators.

A second difficult problem the NCI is actively trying to address is how to create a diverse workforce of scientists and doctors who look like the patient population they treat. In terms of how funds are distributed to scientists (i.e., research grants), the gender gap appears to be shrinking, but there has been no real improvement for African American and Hispanic Principal Investigators (PIs). What are some possible explanations for these racial/ethnic disparities in the scientific workforce? "One of the arguments that has been made, I think persuasively with data and analytics, is that the peer review study section process is not totally fair to PIs of certain backgrounds. Certain PIs will do less well in peer review for reasons that have little to do with their science. And that is a difficult problem to fix," said Dr. Sharpless. As a potential solution, some advocate for increased funding in disparities research, since much of this work is often conducted by underrepresented minority scientists. Dr. Sharpless is not supportive of this approach and stated "minority scientists should not have to work in disparities research to be treated equally, and we need diversity in all areas of research". The Equity Council will leverage existing NCI training programs focused on increasing diversity (e.g., iCURE, CPACHE) and

other activities to build a workforce that is reflective of the U.S. population.

The third problem that Dr. Sharpless hopes the Equity Council will address is more subtle in nature. While the NCI's scientific mission is great, there are people at the NCI who feel unappreciated and do not feel like they have a mentoring path or support network. This feeling was common among the 2020 DCDP cohort at the beginning of the program. When discussing the root of this problem, Dr. Sharpless said: "There is not enough diversity in leadership at the NCI and across the NIH as a whole. There are stresses and negative factors that are not spread evenly across the institution that fall disproportionately on certain groups." Dr. Sharpless is committed to address these concerns and identify ways to not only attract but also to retain a diverse and talented workforce. One of the Equity Council's aims is to ensure a positive organizational culture that enhances recruitment and promotion of highly diverse individuals. As the chair of the NCI's Equity Council, Dr. Sharpless has identified multiple working groups that will work synergistically to achieve these goals. To ensure the success and visibility of the Equity Council, two dedicated working groups will track and evaluate all other working group activities. One group will measure activities and outcomes using realistic benchmarks, whilst the other will ensure clear lines of communication between the Equity Council and the NCI community.

The DCDP and Dr. Sharpless have hope that real progress can be made. We believe the goals stated above are shared by the whole of the NIH. We need to continue to educate our colleagues and peers of the benefits of a diverse and inclusive scientific community. The DCDP has the power to create the welcoming and

inclusive environment that is sometimes missing from the NCI experience. Graduates from the program leave with a better understanding of the value they bring and a genuine desire to help the next generation of underrepresented scientists reach their potential.

The application process for the DCDP 2021 cohort is open every fall.

More information about the program and specifics about the application process can be found on <https://www.cancer.gov/grants-training/training/idwb/dcd-program>.

